**Background:**

- Beginning in April 2014, EPA R7 established an air monitoring/sampling network ~~at~~ outside the perimeter of the West Lake Landfill Site (WLLS) *with the primary objective being to collect data that are representative of outdoor air conditions surrounding the WLLS before any potential construction of an isolation barrier (IB) at the Site. I.e collect pre-construction background data along.*

- *The end results of the current effort will be used for comparison with data that may be collected during potential construction of an isolation barrier in order to determine if there is any impact on the air quality of the community surrounding the landfill site during that construction. I.e. determine if there is a release from the Site that requires an on-site response or modification of construction activities.*

- Daily air monitoring/sampling activities began at this network approximately in April 2014, with some monitors/samplers not fully functional until June 2014. Monitoring/sampling is being conducted for radiological parameters (including alpha-, beta-, and gamma-emitting radionuclides on particulates; radon; and external gamma exposure), as well as typical solid waste landfill gases (including sulfur dioxide, hydrogen sulfide, carbon monoxide and volatile organic compounds).

- Five stations were set up in/around the Bridgeton area to ensure broad coverage around the perimeter of the WLLS and nearby residential populations. Refer to the attached table for more details regarding the capability of the five stations.

- MDNR has operated an air monitoring network near the site fence line since April 2013 to measure emissions from the Bridgeton landfill for comparison to health-based criteria. MDNR's network consists of three monitoring sites that continuously monitor for hydrogen sulfide, sulfur dioxide, carbon monoxide, and gamma radiation. MDNR also performs routine, twice daily, surveillance of hydrogen sulfide, benzene, and odor levels around the entire periphery of the landfill at fixed locations near the site fence line. These data are compared to health-based criteria by MDHSS. Finally, MDNR collects upwind / downwind samples once per week to measure volatile organic compounds that may be escaping the site.

- Republic will operate an air monitoring network consisting of thirteen on-site locations. Six monitoring sites will be located immediately adjacent to OU-1 Areas 1 and 2 and one site located at the southern site perimeter. All thirteen sites will monitor for radiological parameters (including alpha-, beta-, and gamma-emitting radionuclides on particulates; radon; and external gamma exposure), in addition, five sites (four at the perimeter of Area 1 and one at the eastern perimeter of Area 2) will monitor for volatile organic compounds every fourteen days. Additionally, Republic will operate an on-site meteorological station to measure and record wind speed and direction.

**Considerations:**

- The current air monitoring/sampling activities are being conducted under the presumption that there will be a Removal Action to install an isolation barrier between the WLLS and the Bridgeton Landfill. To conduct any actions under Removal Authorities of CERCLA and the NCP, there must be an Action Memorandum documenting a decision that the Removal criteria in the NCP are met and that there is an on-going release or an imminent and substantial threat of a release that requires an emergency or time-critical Removal Action. That has not happened yet. Absent that authority, Superfund is collecting "assessment" information under Removal assessment authority to determine background levels of contaminants of concern near the site before construction begins. This information would then be used during construction to determine if the construction activities are causing a release of CERCLA hazardous substances, pollutants or contaminants from the site. Absent an ongoing release from the site, of which there is no evidence at this time, Superfund does not have the authority to continue sampling indefinitely. Neither does CERCLA authorize the investigation of releases from mobile or active industrial sources or permitted sources. Input here statements about authorities under which the original network system was put in place (removal action) and that allows the Superfund program to spend money on the system. The monthly cost of the monitoring/sampling is approximately $55,000.

- To date, approximately nine (9) months of monitoring data has been collected which spans the entire summer and fall seasons and touches on winter and the spring. *To date, the radiological and VOC data has been found to be consistent with "normal" ambient background levels in the St. Louis metropolitan area*. The H2S, SO2 and CO data appear to be consistent with the monitoring technology deployed and project data quality objectives. The resultant data quality, however, is not suitable for direct comparison to risk-based standards such as the National Ambient Air Quality Standards (NAAQS) due to measurement uncertainty. It is more appropriate to compare short-term monitoring data to PELs and/or STELs. It was anticipated ENST would recommend what those short-term site-specific "action levels" would be once the "background" monitoring/sampling was completed.

- MDNR has employed similar monitoring technology as EPA at their fixed monitoring stations mentioned above. MDNR has also, however, supplemented their fixed monitoring stations with twice-daily monitoring surveys using highly sensitive instruments for both H2S and Benzene. Additionally, MDNR monitors for odor during these surveys. These monitoring surveys consist of taking measurements at fixed points surrounding the perimeter of the Bridgeton / Westlake complex twice a day for comparison to health-based criteria. These monitoring surveys have consistently measured H2S concentrations substantially lower than the fixed monitoring stations because the fixed stations are sensitive to other sulfur containing compounds found in landfill gas. MDHSS review of the H2S monitoring data collected at the perimeter of the Bridgeton / Westlake complex to date has concluded that there have been no H2S concentrations sufficient to cause public concern. (need to review all reports and validate this statement)

**Recommendations:**

- EPA modify its landfill air monitoring network to consist of one location, the existing station located in Spanish Village, and to monitor only for radiological parameters, the primary contaminants of concern at WLLS.
- EPA collaborate with MDNR to explore the need to collect more highly refined ambient air monitoring data for comparison to the NAAQS and health based criteria for carbon monoxide, sulfur dioxide, and total reduced sulfur compounds.
    - In order to address concerns that may be the result of our analysis of screening level data in cooperation with MDNR/MDHSS

- MDNR continue to operate its air monitoring system to address Bridgeton VOC and H2S emission concerns. Add in here whatever other suggestions came out of the meeting on 1/22 about working with MDNR to investigation certain type of compounds we found.